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KENNETH W. G. HEATHFIELD, M.D., M.R.C.P.
Consultant Neurologist, Whipps Cross, Barnet, and
Luton and Dunstable Hospitals.

ERIC C. O. JEWESBURY, D.M., F.R.C.P., D.P.M.
Consultant Neurologist, Royal Northern,
North Middlesex, and Chase Farm Hospitals.

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Medical Memoranda

Aorto-duodenal Fistula after Surgery of Abdominal Aorta

The following case histories are presented to draw attention to the occurrence of aorto-enteric fistula as a sequel to reconstructive operations such as thrombo-endarterectomy or grafting of the abdominal aorta, for when such a complication occurs the patient may present with symptoms and signs of gastro-intestinal haemorrhage. The complication has occurred in approximately 2% of our cases.

CASE REPORTS

Case 1.—In April, 1958, a 58-year-old man presented with an aneurysm of the abdominal aorta which was treated by resection and insertion of a nylon prosthesis. His convalescence was complicated by the development of a small-bowel obstruction due to adhesions, wound sepsis, a pelvic abscess, and a deep-vein thrombosis in the left leg. He was discharged from hospital seven weeks after operation. In August he was admitted to another hospital and an operation was performed for a small-bowel obstruction due to adhesions. The post-operative course was apparently complicated by a staphylococcal septicaemia. In May, 1959, he developed sudden abdominal pain, collapsed, and died. Necropsy showed that the proximal graft anastomosis had ruptured into the posterior aspect of the third part of the duodenum, and the stomach and small gut were filled with blood. There was also extensive clot in the retro-peritoneal tissues and right psoas sheath.

Case 2.—A 57-year-old man developed intermittent claudication in the thighs and calves which stopped him walking after 50 yards. The common femoral pulses were reduced and no other pulses were palpable in the lower limbs; aortography confirmed the presence of an atherosclerotic occlusion of the aorta and common iliac arteries. In December, 1958, thrombo-endarterectomy of the lower aorta and common iliac arteries was carried out with complete relief of the claudication and restoration of popliteal and ankle pulses; the patient returned home on the 19th day after operation. A month later he started to complain of intermittent epigastric and para-umbilical pain; physical examination was negative and a barium-meal examination revealed nothing abnormal. In April, 1959, he had a haematemesis and was treated medically in hospital for six weeks. In July he was admitted to another hospital with a recurrence of the haematemesis; an emergency partial gastrectomy was carried out, but he died. Necropsy showed that the cause of the gastro-intestinal haemorrhage was a fistula between the right common iliac artery at the line of suture and the third part of the duodenum.

COMMENT

Reported cases of aorto-enteric fistula occurring after reconstruction operations on the abdominal aorta are few and relate mainly to the use of homografts. In an analysis of 120 consecutive cases of major arterial grafts Humphries *et al.* (1956) noted two instances in which freeze-dried homografts had ruptured into the duodenum and one case of rupture into the jejunum. DeWeese *et al.* (1959) also recorded two cases of aortic homograft failure with rupture into the jejunum. In the case described by Hagland *et al.* (1959) the patient was found to have a duodenal ulcer and was submitted to partial gastrectomy before it was realized that the cause of his gastro-intestinal haemorrhage was rupture of an aortic homograft into the ileum.

While the reports from the literature suggest graft failure as the cause of fistula formation, it seems probable that the friable nature and poor suturing qualities of the atherosclerotic aorta are of even greater importance, and it is perhaps surprising that the complication does not occur with greater frequency. The third part of the duodenum is at a much lower level than is generally realized and must often be reflected upwards to expose the aortic bifurcation. Where fistula formation takes place this part of the duodenum, which is unprotected by peritoneum, would appear to be especially vulnerable, irrespective of whether a grafting procedure or thrombo-endarterectomy has been carried out.

Aorto-enteric fistula should be regarded as a likely cause of gastro-intestinal bleeding in patients who have been submitted to reconstructive surgery of the abdominal aorta, for as survival rates for such operations improve it may be that this complication will be seen more often.

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H. S. SHUCKSMITH, T.D., M.B., B.Sc., F.R.C.S.,
Surgeon, General Infirmary at Leeds.

G. WILSON, M.B., F.R.C.S.,
Surgical Tutor, General Infirmary at Leeds.

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A revised British Standard—Methods for Determination of Air Pollution (B.S.1747: 1961), Part 1. Specifications for Deposit Gauges—has now been published. When it was first published in 1951 it was concerned solely with deposit gauges. Now it is being reissued in several parts to cover, in addition, apparatus and procedure for the measurement of (1) fine particles (smoke), and (2) gaseous impurities, as well as the solid material (such as grit) which is measured by the deposit gauges specified in Part 1 of the standard. Experience in the use of deposit gauges during the past ten years has enabled the British Standards Institution committee concerned to introduce a number of refinements into the standard, but the procedure outlined is substantially unchanged. The standard deals with the construction, installation, and use of deposit gauges. A standard report form and a statement of the analytical determinations to be made are included. Copies may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London W.1, price 5s. each, postage extra to non-subscribers.